

REMARKS

The Office action of November 25, 2003 has been received and its contents carefully noted.

Claims 6-10 and 33-35 are pending in the application. Claims 6, 10, and 33 have been amended. Claims 36-41 have been added without the addition of new matter. Claims 1-5, and 11-32 have been canceled.

Claims 6-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eakins et al. ("Eakins") (Retrieval of trade mark images by shape feature - the ARTISAN project, Intelligent Image Databases, IEEE Colloquium, pages 1-6, May 22, 1996). Claims 33-35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rioux et al. ("Rioux") (U.S. Patent No. 6,016,487). Applicant respectfully traverses these rejections, and request allowance thereof in the continuation prosecution application for the following reasons.

Substance of Examiner Interview

Applicant acknowledges with appreciation the courtesy extended to Applicant's representative by the Examiner during the interview conducted on May 18, 2004.

Applicant's representative and Examiner discussed the allowability of independent claims 6 and 33 in view of the cited

prior art, Eakins et al. ("Eakins"). The examiner maintained the rejection of the last office action mailed November 25, 2003 for these claims based on the interpretation that the "view" recited in the claims may be read very broadly to read on the search method disclosed by Eakins.

In response to the maintained rejection, representative contended that the view recited in the claims refers to the different perspective views of a three-dimensional object which strongly contrasts from the single two-dimensional view disclosed in Eakins. In response to this contention, Examiner agreed to more closely review this distinction, which should overcome the Eakins reference, when an amendment is subsequently submitted that further clarifies this distinctive feature. Further, the Examiner recommended incorporating the feature of using at least two different perspective views to search and retrieve a matching result, and filing a Request for Continued Examination to continue prosecution of the present application.

The Claims are Patentable Over the Cited References

Claims 6-10 are not made obvious by Eakins

Claims 6-10 stand rejected under § 103(a) in view of Eakins. Applicant strongly contends that Eakins fails to disclose the features recited in these claims as amended such as providing a

plurality of stored image representations of three-dimensional objects, each image representation being associated with an object descriptor, each object descriptor including a plurality of view descriptors, each view descriptor a representation of one of the three-dimensional objects from a different perspective view of the three-dimensional object, and selecting and displaying at least one result corresponding to one of the image representations containing an object for which comparison between the associated object descriptor and the query object descriptor indicates a degree of similarity between the query object and said object.

Eakins does not disclose this patentably distinct feature of providing stored object descriptors, each object descriptor including a plurality of view descriptors, each a representation of a three-dimensional object from a different perspective view of the three-dimensional object, and selecting and displaying a corresponding image representation from similarity between the query object and the object in the image, from object descriptor and query object descriptor similarity, in addition to the remaining features as recited.

In contrast to the recited feature, Eakins solely describes developing image descriptions of two-dimensional trademark images (see Figs. 1-4; page 2, lines 3-22). The Office Action notes that Eakins develops different image descriptors for a single trademark

image using the presence of different geometric patterns located in the trademark image where these different image descriptors correspond to different levels (entire image, proximal family, and individual boundary) of shape features (see page 4, lines 11-14). However, the Office Action appears to go too far by stating that these different levels of shape features disclosed by Eakins are equivalent to the different perspective views (view descriptors) of a three-dimensional object as recited. Simply put, the plurality of different perspective views of a three-dimensional object as recited are not equivalent to the different levels of image descriptors of a two-dimensional trademark image as disclosed by Eakins.

These different levels (sets) of shape features, as disclosed by Eakins, are merely different sub-elements of the single 2-dimensional (perspective) view of the trademarked image which, by its 2-dimensional nature, only has a single perspective view instead of the multiple perspective views (e.g., top, bottom, etc.) available from a three-dimensional object. Applicant strongly contends that different sub-elements of the single 2-dimensional view of the trademark image (as disclosed by Eakins) do not correspond to the recited feature of a plurality of view descriptors for a three-dimensional object, each a representation of the three-dimensional object from a different perspective view.

Instead of the recited feature of providing a plurality of stored image representations of a three-dimensional object, each associated with an object descriptor including a plurality of view descriptors with each being a representation of the object from a different perspective view, Eakins in direct contrast solely develops image descriptors depicting different sub-elements of the same 2-dimensional (perspective) view of the trademark image. Simply put, Eakins completely omits any mention of an object descriptor including a plurality of view descriptors, each a representation of the three-dimensional object from a different perspective view of the three-dimensional object. Eakins may include a different sub-element of the same perspective view, but not a different perspective view as recited.

Regarding claim 10, Eakins makes no mention of the recited feature of deriving a curvature scale space representation for the object outline. As supported by the specification, the claimed feature includes processing features of smoothing and graphing of zero crossings which are completely omitted from Eakins. It is clear that Eakins does not disclose the recited features making the claimed invention patentably distinct and non-obvious from the cited reference.

Claims 33-35 are not made obvious by Rioux

Claims 33-35 stand rejected under § 103(a) in view of Rioux. Applicant strongly contends that Rioux fails to disclose the features recited in these claims as amended such as receiving a query descriptor representing a two-dimensional view of a query object, and comparing the query descriptor with a plurality of stored object descriptors each representing a three-dimensional object, each object descriptor including a plurality of view descriptors, each view descriptor a representation of the object from a different perspective view of the three-dimensional object, each stored object descriptor being associated with an image representation of the object, and selecting the three-dimensional object and associated image representation when the respective stored object descriptor matches the query descriptor.

Rioux makes no mention of these recited features. Firstly, in contrast to the recited features, Rioux actually inputs a three-dimensional object rather than a two-dimensional view of a query object. Particularly, Rioux states that "...the input search criteria object 30 is preferably a scanned 3-dimensional image..." (see FIG. 3; col. 5, lines 51-52). Rioux inputs a 3-dimensional image of the object rather than a 2-dimensional view as recited.

Rioux completely omits any mention of a plurality of stored object descriptors each comprising a plurality of view descriptors,

each a representation of the object from a different perspective view of the three-dimensional object as recited. In strong contrast to and teaching away from the recited features, Rioux instead describes objects in the search database as using object descriptors which are orientation independent and which are defined as characteristic descriptors that are based on scale, color, and geometry. Particularly, Rioux states that "...the object models in the database are analyzed to extract characteristic descriptors in advance of searching...the characteristic descriptors calculated for the search criteria image and the database images are orientation independent...this provides a consistent basis on which to search through all objects, even those that are different only in orientation." (see col. 4, lines 57-65).

Rioux discloses an object searching method that critically relies on an input object not differing in orientation to an object in the search database so his method only uses orientation independent object characteristics for searching which completely contrasts with and teaches away from the recited feature of storing an object descriptor including a plurality of view descriptors, each a representation of the object from a different perspective view, and then selecting the three-dimensional object and associated image representation when the respective object descriptor matches the query descriptor.

Applicant strongly contends that using a plurality of different perspective views of an object to search and display the associated image representation containing the object as recited is significantly different from using orientation independent characteristics (e.g., color, scale, geometry) to search and display a corresponding image including the object.

It is clear that Rioux does not disclose the recited features making the claimed invention patentably distinct and non-obvious from the cited reference.

Conclusion

In view of the amendments and remarks submitted above, it is respectfully submitted that all of the remaining claims are allowable and a Notice of Allowance is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Clint Gerdine (Reg. No. 41,035) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees

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required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH, & BIRCH, LLP

by ^{0.77} Clint Dordine 4/035
Michael K. Mutter, Reg.#29,680

MKM/CAG:tm
1906-0128P

P.O. Box 747
Falls Church, VA 22040-0747
Phone: (703) 205-8000